AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for calibrating a measuring system comprising a measuring device ~~(1)~~ with a laser tracker ~~(2)~~ and an opto-electronic sensor ~~(3)~~ having fixed positions relative to one another, an auxiliary measuring tool ~~(4)~~ and a system computer, wherein the auxiliary measuring tool ~~(4)~~ comprises ~~at least~~ one reflector ~~(5)~~ or more than one reflector for reflecting a measuring beam ~~(7)~~ directed on to said ~~at least~~ one reflector or more than one reflector by the laser tracker ~~(2)~~ and at least three light spots ~~(6)~~ to be registered by the opto-electronic sensor ~~(3)~~ and being arranged in a known light spot arrangement, the method comprising the steps of:

~~rigidly coupling the auxiliary measuring tool (4), if said auxiliary measuring tool comprises fewer than three reflectors (5), with an arrangement of auxiliary reflectors (5')~~ when said auxiliary measuring tool comprises fewer than three reflectors, coupling the auxiliary measuring tool to an arrangement of auxiliary reflectors such that the total number of reflectors is at least three,

moving the auxiliary measuring tool ~~(4)~~, ~~if applicable,~~alone or together with the arrangement of auxiliary reflectors, ~~(5')~~ around at least two rotation axes, said at least two rotation axes being different relative to the auxiliary measuring tool ~~(4)~~,

registering, in at least two rotation positions for each one of the at least two rotation axes, measured data regarding the total of at least three reflectors ~~(5)~~ and, if applicable, auxiliary reflectors ~~(5')~~ with the laser tracker ~~(2)~~ and measured data regarding the at least three light spots ~~(6)~~ with the opto-electronic sensor ~~(3)~~,

calculating from the measured data of the laser tracker ~~(2)~~ positions and orientations of the reflector arrangement relative to the laser tracker ~~(2)~~ and from the measured data of the opto-electronic sensor ~~(3)~~ positions and orientations of the light spot arrangement relative to the opto-electronic sensor ~~(3)~~,

calculating from the positions and orientations of the two arrangements the at least two rotation axes ~~(1A, 2A)~~ relative to the reflector arrangement and the at least two rotation axes ~~(1B, 2B)~~ relative to the light spot arrangement, and

calculating calibration data by equating corresponding rotation axes ~~(1A with 1B, 2A with 2B)~~ of the two arrangements and storing the calibration data in the system computer.

2. (Currently Amended) The method according to claim 1, wherein the at least two rotation axes being different relative to the auxiliary measuring tool ~~(4)~~ are created by mounting the auxiliary measuring tool ~~(4)~~, alone or ~~if applicable,~~ together with the arrangement of auxiliary reflectors, ~~(5')~~ in at least two different orientations relative to a stationary rotation axis (C) and by rotating the auxiliary measuring tool in each one of the orientations around the stationary rotation axis (C).

3. (Currently Amended) The method according to claim 1, wherein the at least two rotation axes being different relative to the auxiliary measuring tool ~~(4)~~ are

created by mounting the auxiliary measuring tool ~~(4)~~, alone or~~if applicable,~~ together with the arrangement of auxiliary reflectors ~~(5')~~, in at least two different first orientations and in at least two different second orientations, wherein the second orientations are selected such that every first orientation is convertible into at least one second orientation by rotation around a stationary, virtual rotation axis (C).

4. (Previously Presented) The method according to claim 2, wherein the stationary rotation axis (C) passes through a central zone of the reflector arrangement and of the light spot arrangement.

5. (Currently Amended) The method according to claim 1, wherein the angle between the two rotation axes being different relative to the auxiliary measuring object amounts ~~to at least~~ to between 25 to 30°.

6. (Currently Amended) The method according to claim 1, wherein, for the step of registering measured data, the optical axis of the opto-electronic sensor ~~(3)~~ is placed approximately on the stationary or virtual rotation axis (C).

7. (Currently Amended) The method according to claim 6, wherein, for the step of calculating positions and orientations of the light spot arrangement relative to the opto-electronic sensor ~~(3)~~, an iterative reverse intersection method is utilized.

8. (Currently Amended) The method according to claim 1, wherein, for

the step of calculating positions and orientations of the reflector arrangement relative to the laser tracker ~~(2)~~, a method of local axis alignment is utilized, wherein the relative positions of the reflectors ~~(5) and, if applicable,~~ alone or with ~~of~~ the auxiliary reflectors ~~(5')~~ are determined beforehand.

9. (Currently Amended) A device for calibrating a measuring system comprising a measuring device ~~(1)~~ with a laser tracker ~~(2)~~ and an opto-electronic sensor ~~(3)~~ having fixed positions relative to one another, an auxiliary measuring tool ~~(4)~~ and a system computer, wherein the auxiliary measuring tool ~~(4)~~ comprises at least one reflector ~~(5)~~ for reflecting a measuring beam ~~(7)~~ directed on to the at least one reflector by the laser tracker ~~(2)~~ and at least three light spots ~~(6)~~ capable of being registered by the opto-electronic sensor ~~(3)~~, the light spots being arranged in known positions relative to one another, the device ~~(9)~~ comprising:

installation means for mounting the auxiliary measuring tool ~~(4)~~ on the device ~~(9)~~ in at least two different orientations; and,

positioning means for positioning the device relative to the measuring device ~~(1)~~ such, that the auxiliary measuring tool ~~(4)~~ mounted on the device can be registered in each one of the orientations by the laser tracker ~~(2)~~ and by the opto-electronic sensor ~~(3)~~ of the measuring device ~~(1)~~.

10. (Currently Amended) The device according to claim 9, further comprising a reflector element ~~(10)~~, the reflector element comprising at least one auxiliary reflector ~~(5')~~ and being mounted in the different orientations, via said installation means, together with the auxiliary measuring tool ~~(4)~~ and rigidly coupled

with said tool.

11. (Currently Amended) The device according to claim 10, wherein the auxiliary measuring tool ~~(4)~~ is adapted for mounting on the reflector element ~~(10)~~ and wherein the reflector element together with the auxiliary measuring tool ~~(4)~~ is adapted for mounting in the at least two orientations.

12. (Currently Amended) The device according to claim 9, further comprising a revolving table ~~(11)~~ and an orientation element ~~(12)~~ installed on the revolving table, wherein the installation means are arranged on the orientation element ~~(12)~~.

13. (Currently Amended) The device according to claim 12, wherein the orientation element ~~(12)~~ is wedge-shaped.

14. (Currently Amended) The device according to claim 12, wherein the installation means are arranged for the stationary rotation axis (C) of the revolving table ~~(11)~~ to pass through a central zone of the light spot arrangement of the auxiliary measuring tool ~~(4)~~ when mounted by the installation means.

15. (Currently Amended) The device according to claim 9, further comprising installation means for mounting the auxiliary measuring tool ~~(4)~~ in at least four orientations, wherein groups of at least two of the orientations are convertible into one another by rotation around a stationary, virtual rotation axis.

16. (Currently Amended) A measuring system comprising:

a measuring device (1) comprising a laser tracker ~~(2)~~ and an opto-electronic sensor ~~(3)~~ having fixed positions relative to one another,

an auxiliary measuring tool ~~(4)~~ comprising at least one reflector ~~(5)~~ together with an arrangement of auxiliary reflectors for reflecting a measuring beam ~~(7)~~ directed on to said at least one reflector and auxiliary reflectors by the laser tracker ~~(2)~~ and at least three light spots ~~(6)~~ for being registered by the opto-electronic sensor ~~(3)~~, the light spots being arranged in a known light spot arrangement,

a system computer, for ~~carrying out the calculation steps of the method according to claim 1~~ calculating from data measured by the laser tracker, positions and orientations of said at least one reflector and arrangement of auxiliary reflectors relative to the laser tracker and from data measured by the opto-electronic sensor, positions and orientations of the light spot arrangement relative to the opto-electronic sensor;

for calculating from the positions and orientations of the two arrangements, at least two rotation axes relative to the reflector arrangement and at least two rotation axes relative to the light spot arrangement;

for calculating calibration data by equating corresponding rotation axes of the two arrangements and storing the calibration data in the system computer; and

comprising a storage space for storing calibration data calculated according to said method, and for carrying out further calculation steps in which the stored calibration data is utilized.

17. (Currently Amended) The measuring system according to claim 16, wherein the auxiliary measuring tool ~~(4)~~ further comprises means for mounting on a device ~~according to claim 9~~comprising.

installation means for mounting the auxiliary measuring tool on the device in at least two different orientations; and,

positioning means for positioning the device relative to the measuring device such, that the auxiliary measuring tool mounted on the device can be registered in each one of the orientations by the laser tracker and by the opto-electronic sensor of the measuring device.

18. (Currently Amended) The measuring system according to claim 16, wherein at least one of the reflectors ~~(5)~~ of the auxiliary measuring tool ~~(4)~~ is a cube corner prism in which a corner zone has been removed , and wherein, behind the removed corner zone a light spot ~~(6)~~ to be registered by the opto-electronic sensor ~~(3)~~ is arranged.